

IN THE CLAIMS

Please amend the claims as follows:

1 1. (Currently Amended) A gap-soliton structure comprising:
2 a cladding structure having alternating layers of different index values; and
3 a core region that is interposed between said alternating layers of index values
4 ~~and comprises a modified core portion in which propagation of certain frequencies is~~
5 ~~not allowed and includes one or more non-linear materials, wherein said core or said~~
6 ~~cladding structure are~~ is arranged so as to achieve gap-soliton bistability by introducing
7 a modified portion in either of said cladding structure or said core region that comprises
8 one or more non-linear materials so that propagation of certain frequencies is not
9 allowed, wherein the index of said one or more non-linear materials is less than the
10 index of the alternating layers of either of said cladding structure or said core region.

1 2. (Currently Amended) The gap-soliton structure of claim 1, wherein said cladding
2 structure and core region ~~form~~ define a photonic crystal fiber.

1 3. (Original) The gap-soliton structure of claim 2, wherein said photonic crystal fiber
2 comprises a Holey fiber.

1 4. (Original) The gap-soliton structure of claim 2, wherein said photonic crystal fiber
2 comprises an omniguide fiber.

1 5 (Canceled).

1 6 (Canceled).

1 7. (Currently Amended) A method of forming a gap-soliton structure comprising:

2 forming a cladding structure having alternating layers of different index values;

3 forming a core region that is interposed between said alternating layers of index
4 values ~~and comprises a modified core portion in which propagation of certain~~

5 ~~frequencies is not allowed and includes one or more non-linear materials;~~

6 introducing a modified portion in either of said cladding structure or said core
7 region that comprises one or more non-linear materials so that propagation of certain
8 frequencies is not allowed, wherein the index of said one or more non-linear materials
9 is less than the index of the alternating layers of either of said cladding structure or said
10 core region; and

11 arranging said core and said cladding structure so as to achieve gap-soliton
12 bistability.

1 8. (Currently Amended) The method of claim 7, wherein said cladding structure and
2 core region ~~form~~ define a photonic crystal fiber.

1 9. (Original) The method of claim 8, wherein said photonic crystal fiber comprises a
2 Holey fiber.

1 10. (Original) The method of claim 8, wherein said photonic crystal fiber comprises an
2 Omniguide fiber.

1 11. (Cancelled)

1 12. (Cancelled)

1 13. (Currently Amended) A gap-soliton structure comprising:

2 a cladding structure having alternating layers of different index values; and

3 a core region that is interposed between said alternating layers of index values

4 and comprises ~~a modified core portion in which propagation of certain frequencies is~~

5 ~~not allowed and includes one or more non-linear materials~~, wherein either said core or

6 said cladding structure is indicative to enhancing said gap-soliton bistability of said

7 structure by introducing a modified portion in either of said cladding structure or said

8 core region that comprises one or more non-linear materials so that propagation of

9 certain frequencies is not allowed, wherein the index of said one or more non-linear

10 materials is less than the index of the alternating layers of either of said cladding

11 structure or said core region.

1 14. (Currently Amended) The gap-soliton structure of claim 13, wherein said cladding

2 structure and core region ~~form~~ define a photonic crystal fiber.

1 15. (Original) The gap-soliton structure of claim 14, wherein said photonic crystal

2 fiber comprises a Holey fiber.

1 16. (Original) The gap-soliton structure of claim 14, wherein said photonic crystal

2 fiber comprises an Omniguide fiber.

1 17. (Cancelled)

1 18. (Cancelled)

1 19. (Currently Amended) A method of forming a gap-soliton structure comprising:

forming a cladding structure having alternating layers of different index values;

and

forming a core region that is interposed between said alternating layers of index

~~values and comprises a modified core portion in which propagation of certain~~

~~frequencies is not allowed and includes one or more non-linear materials~~ so that either

said core or said cladding structure is indicative to enhancing said gap-soliton bistability

of said structure by introducing a modified portion in either of said cladding structure

or said core region that comprises one or more non-linear materials so that propagation

of certain frequencies is not allowed, wherein the index of said one or more non-linear

materials is less than the index of the alternating layers of either of said cladding

structure or said core region.

20. (Currently Amended) The method of claim 19, wherein said cladding structure

and core region ~~form~~define a photonic crystal fiber.

21. (Original) The method of claim 20, wherein said photonic crystal fiber comprises

a Holey fiber.

22. (Original) The method of claim 20, wherein said photonic crystal fiber comprises

an Omniguide fiber.

23. (Original) The method of claim 19, wherein said core comprises said one or more

nonlinear materials in a defined region.

1 24. (Original) The method of claim 19, wherein said cladding structure comprises said
2 one or more materials.

1 25. (Original) The gap-soliton structure of claim 1, wherein said core performs single
2 mode guiding of light.

1 26. (Cancelled)

1 27. (Cancelled)

1 28. (Cancelled)

1 29 (Cancelled)

1 30. (Original) The method of claim 7, wherein said core performs single mode
2 guiding of light.

1 31. (Cancelled)

1 32. (Cancelled)

1 33. (Cancelled)

1 34. (Cancelled)

1 35. (Original) The gap-soliton structure of claim 13, wherein said core performs
2 single mode guiding of light.

1 36. (Cancelled)

1 37. (Cancelled)

1 38. (Cancelled)

1 39. (Cancelled)

1 40. (Original) The method of claim 19, wherein said core performs single mode
2 guiding of light.

1 41. (Cancelled)

1 42. (Cancelled)

1 43. (Cancelled)

1 44. (Cancelled)